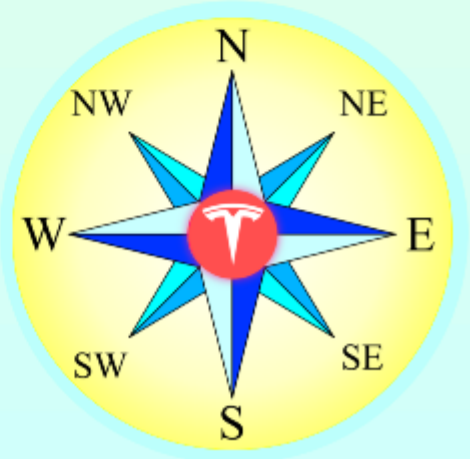
Myths versus Facts Behind Asset Diversification

Tesla Spotlights Pitfalls and Safeguards in Risk Management



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Overview

The goal of asset diversification lies in shrunken risk for equal gain. This precept, however, shrugs off a host of grave dangers in the real and financial markets. An example involves an investor who allots a uniform sum to the firms in a newborn industry. Unfortunately, the vast majority of hatchlings are doomed to perish within a few years if not months.

Another instance of flawed diversity concerns an index fund trained on a dynamic market such as clean energy. The products at hand could range from solar cells and

electric cars to motile batteries and basic materials. In that case, the stocks will likely be weighted by their valuations on the bourse. However, certain markets such as commodities should at length contract in a green and sustainable economy. Moreover, many a miner will be poorly placed to harness the uprise even in the odd niches that do grow in the interim.

In these and other ways, a gung-ho approach to diverseness is fraught with perils. An exception to prove the rule concerns a bellwether named Tesla. The mass of investors treats the vanguard as little more than a carmaker. Yet, the beacon also leads the way in other areas such as charging stations and advanced batteries, self-driving software and power grids. Given this backdrop, the sage investor sidesteps the markets staked by Tesla and expands instead into remote fields that lie beyond the firebrand's sights for the foreseeable future.

In the larger scheme of things, the foul-up of asset diversification is a rampant reason for the failure of investors and pundits alike to keep up with the benchmarks of the stock market. As an antidote, a solid grasp of the myths and mistakes is a basic step toward crafting a sound program of investment.

Dangers of Diversity

The diversification of assets lies at the heart of risk management. By this prescript, a portfolio containing two or more assets marked by equal levels of risk and return should display less volatility than any of the members yet render the same return over the long range. The upshot is an increase in risk-adjusted gains.

From a different slant, the dogma of diversity is often upheld as a rare – and according to some gurus, the only – form of free lunch on Wall Street. Upon closer inspection, though, the bromide of jumbling is not the panacea it's cracked up to be. The spoilers spring from a couple of sweeping assumptions overlooked by the mass of investors ranging from rank amateurs to badged professionals.

One hang-up abides in the premise of independent movements in price among the assets in play: a regnant myth among practitioners as well as researchers. The second stumper involves the false posit of perfect rationality: the notion that investors in the aggregate conduct sober and balanced assays of the marketplace at all times. The voodoo of boundless wisdom applies, for instance, to the global outlook for the real

economy or the precise valuation of every asset in the financial forum. Unfortunately, all these clichés happen to be false.

Given this background, an excess of diversity plagues the mass of participants ranging from part-time tyros to full-time pros. An example concerns a lone investor who divvies up a pool of capital in equal measure to a bunch of budding firms in a blooming industry in the hope of bagging a mint while curbing the risk of volatility.

Sadly, though, the vast majority of saplings are fated to waver and crumple within a few years if not months. In this baneful environment, the grave threat of a total flop far outweighs the minor woe of a bumpy ride in asset prices.

Another sample of mordant diversity involves a communal pool meant to serve as a handy vessel for investing in a booming market. For instance, a multihued fund may cover a raft of firms in clean energy – ranging from electric carmakers to battery vendors – while weighting the stocks based largely or entirely on their latest valuations on the bourse. The simplistic mode of capital allocation, however, ignores the fact that the fledglings will conk out in droves.

Moreover, the rare birds that do withstand the rigors of competition will likely render scanty returns to their shareholders. In general, the newborns in a sprouting market struggle mightily just to survive. Not surprisingly, even the oddballs that manage to remain standing are hard-pressed to chalk up any profits worth noting. The generic rule of skimpy earnings by the nurslings holds sway whether the overall revenues of the nascent market happen to grow at a sluggish pace or a zippy rate.

If we look at the big picture, the knockout of entrants in droves is business as usual in a callow market. Among the rare survivors, only a couple of remnants at most will render ample returns to their backers in due course. In this grim setting, a blind devotion to the gospel of asset diversification is a steadfast way to reap lousy returns rather than lusty profits.

From a different angle, the surfeit of washouts in a diversified fund may well ensure that the investors end up trailing behind the benchmarks of the stock market. That’s especially true of a roily field teeming with unripe ventures as opposed to a sedate tract settled by mature firms. For this reason, a rabid approach to asset diversification is a mug’s game rather than a sound play, much less a sure path to plum gains as touted by the mass of investors and pundits.

An example resides in the moiling field of green energy at the dawn of the millennium. As a point of reference, an exception to prove the rule involves a trailblazer named Tesla in its mission to foster a sustainable economy in the world at large. The epic tale of sideswipes and smackdowns, along with bouncebacks and triumphs, spotlights a host of myths and mistakes in asset diversification. Moreover, the case study highlights a medley of lessons on deft methods for fixing up a cogent program of investment.

From a larger stance, the botch-up of asset diversification is a prime reason for the widespread custom of the investing public for trailing behind the benchmarks of the bourse. The fables and bloopers beset all manner of actors ranging from wild-eyed amateurs to jaded professionals. In this vale of tears, a solid grasp of the myths and muffs is a basic step toward crafting a trenchant program of investment.

A Lesson for the Ages

By received wisdom as well as common folklore, the diversification of assets is a dandy way to secure superior returns. Upon closer inspection, though, the fond embrace of diversity is a great way to reap measly profits or even thumping losses.

To fathom the pitfalls in store, we turn to a cautionary tale. The greatest blowup of the stock market in the modern era arose with a frenzy for all things Internet during the late 1990s. As a sign of the times, a college student with no training at all in technical fields – let alone experience in business methods – could declare an urge to launch a digital venture. In response, a crush of supposed investors would rush in and hand over millions of dollars at a stroke in order to get a piece of the action.

By the same token, myriads of flaky startups would pile into the stock market in hotspots ranging from New York to Seoul, without deigning to concoct a business plan worth a dime. In fact, the grifters behind the shell games didn’t even pretend to know what they were doing. Instead, the spiel they spouted was a sheer spoof: give us your money now, and we’ll figure out a way – at some nameless date in the future – to dream up a snazzy product, cook up a business model, and rack up a fat fortune.

In the throes of the delirium, the mass of sucklings on the bourse flaunted little or nothing by way of revenues, let alone profits. Despite the empty promises coupled with bleak prospects for the future, the brayers could boast valuations far above those of mature firms sporting track records of earning profits and paying dividends for decades on end.

Needless to say, but worth saying anyway, none of the bilkers survived the bust of the digital bubble in spring 2000. In the aftershock, millions of patsies round the world – who fancied themselves to be “investors” – lost trillions of dollars in toto.

The only ventures in cyberspace spared by the mass extinction were stalwarts that had emerged prior to the outbreak of the Internet rage. Examples of this stripe lay in Yahoo, Amazon and Google. By contrast, the shysters that popped up in the throes of the frenzy went splat when the bubble blew up.

To sum up, millions of so-called investors lost their grubstakes regardless of the scope of diversification in cyberia. That is, disaster ensued whether a given gamester picked a single trendy stock or a bunch of faddish names.

From a larger stance – albeit to a somewhat lesser degree – the story was similar for the stock market as a whole. Among the leading benchmarks, the Nasdaq 100 Index suffered the worst fate. After touching a peak of 4,816.35 points in spring 2000, the touchstone tumbled in stages by some 83% to hit a trough of 795.25 in the autumn of 2002. The plot was similar for the Nasdaq Composite, which plunged more than 78% over the same stretch.

To recap, the drill of diversification is not the silver bullet imagined by legions of rooters ranging from lone investors and fund managers to market pundits and academic savants. All too often, a passion for diversity is a source of ruin rather than riches.

Gales of Din and Smog

By the slogans of airy theory as well as earthy practice, the financial forum is a sleek place where solid facts prevail over hollow myths. In this ideal setting, every nub of useful information is absorbed at once and processed with perfect wisdom. In that case, no single actor has an opportunity to outwit anyone else nor earn superior returns. In the orthodox school of finance and economics, the dreamy model of perfection is enshrined as the *Efficient Market Hypothesis*.

Sad to say, but the notion of utter slickness is a sheer fantasy that strays far from the rude reality. If truth be told, every market is a gunky system where sham stats, tall tales, and rash schemes prevail as a matter of course over hard facts, sound moves, and even common sense.

A fine example of the hooey appears in a war of words waged by the mass media in a decades-long campaign to bamboozle the general public. Another sample involves the bog of mindless conformity that trammels the bulk of entrants ranging from part-time novices to full-time veterans.

Circus of Flimflam

The mind-numbing complexity of the real and financial markets stymies all manner of actors. To compound the muddle, the mass media in certain cases go out of their way to distort the facts and mislead the public to suit their own ends. The bunco of the newsmongers is a far cry from their self-professed role as impartial agents bent on baring hard facts and airing sound insights in order to enlighten the audience.

The subjects fudged by the media run the gamut from technical progress and economic growth to political discourse and societal change. On occasion, the outpour of fake news does not merely obscure the reality but inverts the truth entirely. That is, the propaganda is so overwhelming that the audience ends up believing the very opposite of the factual.

One outgrowth is to frustrate the mass of investors and pundits in their efforts to grasp the past or grok the present, cast the future or craft a strategy. An exemplar involves a decades-long campaign of disinformation conducted by the mass media and their sponsors in order to cripple a maverick named Tesla in its mission to nurture clean energy starting with electric cars.

For instance, the mass of consumers has long believed that the electric cars built by Tesla are unsafe and unreliable compared to the traditional rides stamped out by fossil-fuel carmakers. Yet the reality lies in the converse direction.

Tesla cars are in fact far safer than old-style buggies for lots of reasons. An example involves the automatic intervention of the braking system if a startled driver happens to step on the accelerator rather than the brake pedal when a pedestrian jumps in front of the vehicle. From a different slant, a Tesla vehicle is so sturdy that it requires no maintenance to speak of compared to a fuel-burning car. Examples such as these affirm the fact that mass media have long pursued an active program of deception and subversion in order to shellac the groundbreaking firm and brainwash the general public (Kim, 2021).

From a different angle, a showcase of passive bungling lies in the custom of treating every vendor in the auto industry as if it has a beefy chance of survival in the sprouting market for electric cars. In the popular image, all the entrants – ranging from sallow youngsters to creaky oldsters – enjoy more or less equal odds of success. This hokey premise afflicts the mass of investors and gurus as well as researchers and reporters.

A fine example in the financial ring involves an acute aversion to Tesla along with its stock (ticker symbol, *TSLA*). For instance, the madding crowd loves to jeer the vernal firm for a valuation in the stock market far above those of the dotard carmakers. The hooting springs from a host of misconceptions in areas ranging from technical progress and consumer preference to public policy and global competition.

In the larger scheme of things, though, Tesla has already proven its mettle by single-handedly creating a mass market for electric cars. Moreover, the primo is the only company in the world that earns gobs of profits by selling electric cars. For these and other reasons, the prodigy is destined to flourish even further going forward.

In stark contrast, the mass of entrants in the field will continue to flounder then collapse before long. In particular, the dinosaurs steeped in the past will die off like lemmings; that is, few – if any – of the fossil-fuel carmakers will survive the electric upheaval.

As we noted earlier, investors on the whole treat every yahoo in the melee as if it has a weighty chance of success. A showpiece lodges in the pipe dream that a latecomer named Lucid will somehow turn into a worthy competitor to Tesla. Upon closer inspection, though, the lagger does not come close to matching the leader by way of current skills or future prospects. That is, the wannabe lacks the moxie to succeed in multiplex ways ranging from creative wit and product innovation to manufacturing skill and logistic savvy.

Flights of Fancy

Lucid talks a lot but doesn’t have much to show for all its bluster. Moreover, the windbag plays fast and loose with the facts.

As an example, the blowhard claimed in 2021 that – based on ratings by the Environmental Protection Agency (EPA) – the mileage of one of its upcoming models surpassed that of a comparable car from Tesla, including a battery pack of equal capacity. To be precise, Lucid declared that an EPA rating of 520 miles was notched

while using a battery pack rated at 113 kilowatt-hours (kWh). Upon closer inspection, though, the boast turned out to be bogus in several ways.

First of all, no credible party tested the model which Lucid claimed could run for 520 miles. The factoid was merely the firm's own say-so backed by no proof at all.

From a different slant, Lucid allowed only a small group of reporters to drive its prototypes for brief spells under the close supervision of its employees. The staffers reined in the drivers and dished out excuses for the raft of features that fell short of expectations, or gizmos that failed to work at all. In the autumn of 2021, for instance, a journalist was permitted to drive an Air Dream model for all of 13 minutes on a single outing (Bassett, 2021). That was surely enough time for a discerning driver to put the kludgey car through its paces under all sorts of road conditions and traffic patterns – not to mention the vagaries of nature such as sun and rain, fog and snow, day and night.

Until November 2021 – when a handful of cars were finally cobbled together and delivered to customers – no outsider had an opportunity to confirm or refute the claim regarding the car's range. Instead, the distinguished and gullible members of the press got to regale their audience with wondrous tales of glitzy exteriors and snazzy interiors that had nothing to do with the real function of electric cars.

Oddly enough, even the final versions which were sold and delivered to customers were studded with glitches ranging from minor bugs to major flaws. In spring 2022, for instance, a professional tester found that the doors of the Air Dream sedan under review did not open or close properly — even though the car had just arrived from the factory. On the cosmetic front, some of the flimsy trimmings such as buttons and switches would have disappointed even in a budget car priced at $20,000, let alone a luxury model costing $170,000 (Hopkins, 2022).

To pile on the bad news, the rough-hewn car displayed loads of deficits in substantive ways as well. For instance, the control screen on the dashboard was prone to turn blank from time to time. From a different slant, the reviewer had to restart the car because the collision alert system went haywire. In addition, the driver was loath to use the adaptive cruise control system since the vehicle got dangerously close to the car in front. Moreover, the cameras meant to monitor the blind spots behind the vehicle failed to activate until a speeding car had already passed, or the driver had merged into the adjacent lane; that is, the cameras worked only when they were no longer needed (Edmunds, 2022; Hopkins, 2022).

From a larger stance, the jumble of flaws cited above portrays only a fraction of the wealth of problems encountered by the customer base. Put another way, Lucid has a custom of shipping out crude cars that don't come close to forming finished products. As we saw earlier, the trove of shortfalls and defects would be damning even in a cheap jalopy, let alone an overpriced sedan. In fact, even the Dream edition at the top of the product line has turned out to be a rousing nightmare.

We now return to the issue of mileage. Perhaps Lucid will someday build a car that can run for 520 miles on a single charge of a battery pack of modest size. That's certainly possible in due course since technical marvels have a way of turning into mellow projects for casual hobbyists.

To evoke an example from the past, the laser represented the cutting edge of technology when it came to life at a corporate research lab in California in 1960. Yet, a friend and I in our last year of high school built a working laser out of wires, batteries, glass tubing, and other simple doodads. The homemade device, which could fit in a largish shoebox, won the first prize at a science fair organized by the city of New York.

To be clear, I don't mean to imply by this example that Lucid will ever catch up to Tesla. The problem for the laggard – as well as other hopefuls – is that Tesla is a fast-moving target. By the time the slowpokes reach their goals, the vanguard has moved much further ahead.

Engines of Progress

Tesla at this stage is a large company. Even so, it still crackles with the creative spark and fiery pep of a startup run by the smartest engineers in the world. One hallmark of its leadership: Tesla along with SpaceX comprise the top picks among the graduates of engineering schools in the U.S. Depending on the year, Tesla wins the gold medal and SpaceX the silver; or vice versa.

As an aside, SpaceX is Elon Musk's true love even though the bulk of his time over the past couple of decades has been devoted to Tesla along with its sundry ventures. From a different angle, SpaceX became the second most valuable private company – that is, one which is not listed on a stock exchange – in the world in 2021 (Sheetz, 2021).

The rocket maker will doubtless clinch the top spot among private firms before long. In the fullness of time, SpaceX – whether it remains private or goes public along the way –

might be outranked in value only by Tesla. Once the campaign to colonize Mars gets going in earnest, the rocketeer could perhaps surpass even Tesla.

This scenario of course assumes that SpaceX makes enough progress toward ample profits before going bankrupt. The hearty outcome is not a certainty, though, for several reasons.

An example involves the time and energy entailed in fending off frivolous lawsuits lodged by the competition in a berserk effort to hinder or even rescind the contracts awarded by NASA to SpaceX. Another instance concerns the fact that Musk until recently had to devote the bulk of his time to Tesla in order to ensure that the latter survives and even thrives against all odds.

In the meantime, though, SpaceX helps Tesla at times in forging quantum leaps in the design and manufacture of far-out products. An example lies in a heat pump that is far more versatile and efficient compared to the heaters and air conditioners borne by conventional cars. Another sample inheres in a novel alloy that enables Tesla to stamp out the entire rear underbody of a car as a single module in one fell swoop; and likewise for the entire front underbody. A helping hand from rocket scientists is one way in which Tesla wields a unique vantage over potential rivals.

Stiff Price for a Lame Car

To return to the burlesque starring Lucid, the sole model tested by the EPA happened to eke out a rating of 451 miles. Moreover, no outsider to date seems to have confirmed the vendor’s boast of a car running for 520 miles on a single charge.

Based on a methodic review of the facts – such as conversions from volt-amp-hours to kilowatt-hours – the battery capacity on Lucid’s long-range model comes out to a bulky 138.6 kWh. Depending on its mood of the day, though, Lucid claims that the Dream edition carries a battery pack of only 113 kWh or 118 kWh (Environmental, 2021; Redlich, 2021a). On the other hand, the actual capacity of 138.6 kWh used in the Dream model exceeds either of these touted factoids by some 23% or 17% respectively.

Despite such inconvenient facts, Lucid loves to blare that it can beat Tesla or any other carmaker in motley ways because its own models are so efficient – regardless of the type of battery employed. The gasbag does deserve high marks for a wild imagination.

In particular, Lucid asserts that its proclaimed range of 520 miles outstrips that of the Model *S* sedan made by Tesla. In line with earlier remarks, the double-talk presumably applies to the Dream edition rigged with a battery pack of 138.6 kWh. On the other hand, the Tesla Model *S* bears a storage rack rated at just 104.96 kWh. In other words, Lucid is using a battery stack that's 32% bigger and claiming that it can outgo a Tesla of "similar" capacity (Redlich, 2021a).

From a different slant, Lucid claimed in the autumn of 2021 that the meager batch of cars that it managed to build and sell to the general public lugged a battery pack rated at just 118 kW hours. Yet, a Lucid model delivered to a customer scarfed down 134 kWh of energy (Redlich, 2021b).

Admittedly, there might be some legit reason for the fishy outcome. For instance, the charging process might be so inefficient that a heap of energy was lost along the way. In that case, though, the poor driver has to pay more to get the juice they need.

Now, what was Lucid saying about building super-duper efficient cars? Wherever the truth may lie, things don't look good for the blowhard.

For these and other reasons, the bluffer is slated to totter along as a niche player at the high end of the price range for electric cars. Based on the performance to date – or more precisely, the dearth of such – its customers will continue to pay through the nose to get a lot less compared to a Model *S* from Tesla.

To sum up, Lucid uses plenty of hot air to pump up its stock. Thus far, though, there is no evidence for real that the operator can achieve a meaningful fraction of the goals it has blazoned for the long haul. On the contrary, the hinky behaviors to date suggest that the poser will continue to rely mostly on smoke and mirrors to buoy its stock. In that case, myriads of investors stand an excellent chance of losing their shorts when the firm implodes in due course.

At the time of writing this report, Lucid is valued at more than 4% of Tesla in the stock market. The percentage is bonkers due to a couple of muck-ups by the madding crowd. Firstly, Lucid is way overpriced in relation to its business prospects – or drought of such. Secondly, Tesla is grossly undervalued since the mob can scarcely glimpse the radiant outlook for the lodestar over the years and decades to come.

Jive of the Zombies

In the din and fog of the marketplace, a horde of plungers has piled into Lucid hoping that it will somehow turn into the next Tesla. Sad to say, but such a miracle is just not in the cards.

Instead, I reckon that the straggler will before long resemble Compaq Computer which had sprung to life in 1982. Upon its inception, the freshling made a big splash in the swelling market for personal computers. The upstart promptly turned into a major player in its chosen niche – a type of feat that Lucid is unlikely to ever achieve.

Despite the promising start, though, Compaq did not possess any competitive advantage to speak of. As a result, the maverick lost its edge within a few years. I, for one, was amazed that the newcomer moved so slowly. Compaq should have raced ahead at lightning speed by shrinking the size and weight of its portable machines, as well as slashing the cost of production along with the price charged to customers.

Speed to market, including a swift descent along the learning curve of production cost, was the only source of strength to be had. But the dawdler acted instead as if it had all the time in the world. It didn't.

As a result, the once-promising venture lost its mojo before long. In 2001, the schlepping elf was overtaken by a lumbering giant in the form of Hewlett-Packard. The behemoth acquired the pygmy for $25 billion the following year (Wiki, 2022).

That was a daffy move by the dopey firm. In due course, H-P gave up on Compaq and abandoned the brand entirely. The complete rubout of the marque at that stage was precisely what I had expected ever since I noted the agility, or lack of such, of the venture in its infancy. In the end, the acquisition of Compaq by H-P turned out to be a costly mistake for the gobbler.

In the current environment, Lucid is in much worse shape than Compaq ever was. The latter upon its debut managed to unveil a computer that was especially compact and lightweight for the era. In this way, Compaq displayed a modicum of creativity at the outset.

By contrast, it's hard to detect any sign of originality or substance lurking behind the facade at Lucid. If the sharper does harbor a competitive edge for real, it sure does a good job of hiding the trump card. In that case, the stock might make a good choice for

the carefree investor who favors firms that are glossy, opaque and shifty rather than gritty, forthright and trusty.

Unfortunately, showboating is not a talent unique to Lucid. On the contrary, blarney is a pervasive feature of the real and financial markets. A fine sample concerns the guild of fossil carmakers along with their endless vaunts, freshly issued year after year, of finally getting serious about joining the electric revolution. The more they huff and puff, though, the less time and zip they have left over to make any headway for real.

Based on the evidence thus far, Lucid will never succeed in electric cars anywhere close to the way that Compaq once did in personal computers. Sadly, though, the mass of investors and gurus refuses to see – much less acknowledge – the writing on the wall.

Simply put, Lucid is not the eldorado of their dreams. Instead, a treasure hunter is more likely to stumble across a pot of gold hidden in their backyard. That much is true of Lucid as well as other sluggards in the vale of electric cars, be they entrenched dinos or newborn upstarts.

In the din and smog of the marketplace, the gamesters today that call themselves investors may look forward to getting wasted rather than making a killing on dodgers such as Lucid. More generally, jumping on the latest bandwagon is not the easy path to riches that the mob so desperately wants to believe. This dictum applies to the dale of electric cars as it does to any other dell in the real or financial markets.

A Rounded Portfolio

In theory, every investor should diversify their portfolio in order to dilute the risks in store. In practice, though, the hoary adage comes with a slew of dangers along with the need for safeguards. A case in point is an investor in clean energy who wants to latch onto Tesla as well as other vendors in nearby niches.

For this purpose, examples of adjunct firms lie in the producers of batteries for electric cars, or the operators of charging stations on the road. Remarkably, though, the best choice in each of the adjoining fields also falls to Tesla. If we look at the big picture, the pathfinder by itself comprises an entire constellation of startups gleaming with stellar prospects.

Blaze of Batteries

The battery pack is the most important and expensive component of an electric vehicle. However, building a good battery at low cost is not a trivial task that just anybody and their cousin can pull off.

To bring up an example, General Motors had to halt the production of its Bolt model in 2021. A direct fallout was to scrunch the carmaker's revenues. To compound the blow, the stricken firm had to recall and refit the battery packs on the entire fleet of 143,000 Bolts it had sold till then.

Given the scale of the fiasco, the bumbling firm sued LG Chem of Korea for supplying the batteries that liked to burst into flames. In response, the defendant agreed to pay US$1.9 billion in order to help offset the direct losses suffered by the carmaker (Welch, 2021). To compound the grief, though, both parties to the spat doubtless sustained indirect costs amounting to many billions of bucks due to the burn-down of reputation and goodwill among their customers appalled by the pyrotechnics; and likewise for myriads of observers watching from the sidelines.

From a larger stance, the hex of defective batteries has vexed many an electric carmaker. A notable exception lies in Tesla, which never faced the cost or embarrassment of having to replace its power packs en masse. On the contrary, Tesla has led the way to storage cells of high quality at low cost. Given this backdrop, the pacesetter represents the top choice for investing in a battery maker.

Even so, a wary investor might also want to look elsewhere in the same domain. In that case, a leading prospect lies in Contemporary Amperex Technology Limited (*CATL*). The Chinese firm is now expanding its production capacity at a furious pace thanks to a staunch customer in the form of Tesla. In the near future, at least, CATL should retain its lead among the outfits that offer batteries for sale (Venditti, 2021).

Looking further downrange, though, Tesla is slated to turn into the biggest *producer* of batteries by the late 2020s. On the other hand, the dynamo won't become the top *vendor* anytime soon since it will have few – if any – batteries it can spare for sale to other hardware firms, whether in the auto industry or elsewhere.

Quite the opposite, in fact: Tesla will continue to buy more batteries from external parties including CATL. For this and other reasons, the latter may well keep the crown as the biggest peddler of batteries in the world.

As part of the expansion program, Tesla is now building a brand-new factory in California to churn out batteries in high volume for static applications such as public utilities. The output will complement the production of advanced cells for electric cars at a pilot plant in California which began operations in the late 2010s. The story is similar for Tesla's brand-new facilities in Germany and Texas, both of which are designed to churn out batteries in addition to vehicles.

Moreover, Tesla continues to swell the throughput at a long-standing factory in Nevada, which happens to be a joint venture with Panasonic of Japan. In addition, the Asian firm will construct brand-new plants in Japan as well as the U.S. to produce novel batteries of the 4680 form devised by Tesla.

Backed by a long-term contract from the pioneer, Samsung of Korea is now building a huge factory in Texas to stamp out fresh batteries by the truckload. To add to the outpour, Tesla may procure additional supplies from a company named *BYD*: the biggest carmaker in China (Saigol, 2022). The latter also happens to be the fourth largest battery vendor in the world at this stage, and may claim the third spot before long.

For an investor to get some exposure to CATL, a simple tack is to buy shares in an index fund that trades in the U.S. under the ticker symbol of *BATT*. At this juncture, CATL makes up nearly 7% of the value of the holdings in BATT. The other jumbos in the fund include Tesla and BYD, as well as a ragbag of mining companies (Amplify, 2022).

On the downside, though, the BATT fund includes a gaggle of struggling carmakers. Examples of this breed lie in Nio of China, along with Lucid and Rivian of the U.S. The presence of the shaky ventures is one reason that the communal fund is a poor choice for the worldly investor.

The quandary is similar, although less problematic, for the mining firms. The biggest entry in BATT – comprising more than 7% of the portfolio – lies in *BHP*, a giant miner based in Australia. Sad to say, but the latter firm is far too diversified to enjoy much of a benefit from selling the raw materials needed to build batteries, even though Tesla has agreed to become one of its customers.

To be sure, many a miner including BHP will trudge higher over the intermediate future. Even so, I expect the returns on investment for Tesla and BYD to surpass that of the average miner by more than 10-fold between now and the early 2030s.

Curbs on Growth for Tesla

If Tesla were to tone down its torrid pace of expansion across far-flung fields, the slowdown will stem mostly from a shift in corporate policy rather than a shortage of skills or resources. Should the spearhead show a measure of restraint, the main reason for assuming a secondary position in any given market will stem from a dollop of optics and politics rather than a shortfall of technics or customers.

As the 2030s roll around, a swelling army of knockers will rail against Tesla for its dominance in multiple industries. In that case, it would be politic for the juggernaut to keep its strengths in check in order to blunt the tirades mustered by legions of critics spouting antitrust concerns. But that's not a form of harassment that Tesla has to worry about at this early stage.

In the meantime, the vanguard will increase its lead in building the best batteries – and at the lowest cost to boot. The applications for the energy packs span the rainbow from cars and ships to drones and planes. The story is similar for power cells to drive autonomous robots in diverse locales such as farms and factories, mines and hospitals, shops and homesteads. And ditto for stationary packs such as those needed for household power plants as well as public utilities.

These products will run on energy cells built atop the breakthroughs announced on Battery Day in the autumn of 2020. At the time, the show-and-tell went over the heads of the mass of investors and pundits. Instead of jumping up and down with excitement, the mobbers pooh-poohed the expo and flogged it as a disappointment. In the years to come, though, the dingbats will get to learn just how clueless they were back then.

In view of the vibrant trends – whether in the past, present or future – the shrewd investor would put most or all of their battery-centric funding into Tesla rather than a second-tier firm. For the sake of diversification, though, they could perhaps allot a small amount to CATL if and when they get an opportunity to invest directly in the Chinese concern.

Trends in Charging Stations

To change gears somewhat, Tesla also holds the pole position among the operators of charging stations on the road. In the words of one reviewer, the pacer "is still the gold standard for charging infrastructure and it shows no signs of slowing down" (Crothers, 2020).

In this arena, the closest thing to a competitor within the U.S. lies in Electrify America. The latter firm was set up in 2016 as a subsidiary of Volkswagen Group of America and loaded with a bankroll of $2 billion. The newborn venture formed part of the settlement reached by Volkswagen with a couple of regulators in the States. The Environmental Protection Agency as well as the State of California had caught the carmaker in an elaborate scam to cheat the public watchdogs in testing for toxic emissions from diesel-fuel cars.

At this stage, Electrify America is seeking a fresh round of funding to expand its charging network. On a helpful note for the firm, an intake of capital from external sources should loosen the tight linkage of the operator to Volkswagen. According to one observer, the close tie to Volkswagen could be “the reason why Electrify America hasn’t attracted many close, lucrative partnerships yet with other automakers” (Halvorson, 2021).

Granted, the foregoing sentiment may explain in part the reluctance of external parties to strike deals with Electrify. On the other hand, the close link to Volkswagen is unlikely to be the main dread that keeps other carmakers at bay.

To set the backdrop, Electrify was not the brainchild of a crusader who wants to make the world a better place. Rather, it was the unloved offspring of a crooked carmaker that had no real choice in facing the wrath of public regulators.

Given this background, the honchos at Electrify are not known for their zeal in pursuing any kind of vision or mission. As an emblem of the lackadaisical approach, many a charging station houses only a few stalls each. Moreover, the bulk of the dispensers at a given site may well be kaput.

By contrast, a charging depot run by Tesla is apt to feature at least half a dozen stalls. To bolster the good news, most or all of the units will be in fine fettle. The equipment rarely breaks down; and when something does go wrong, it’s promptly fixed by a roving brigade of technicians.

Another vantage lies on the financial front, as Tesla has plenty of moola to expand its charging network going forward. As of spring 2022, the company boasted 3,724 charging stations: an increase of 38% over the previous year. The charging sites on average featured 9 stalls each. From a different slant, Tesla’s network counted over

33,657 stalls worldwide (Tesla, 2022). Looking downrange, the infrastructure will continue to burgeon at a zestful pace.

On a different but related note, Electrify relies on batteries obtained from Tesla in order to store the juice at its charging stations (Lambert, 2021). The batteries are topped up during slow periods throughout the day and night when the cost of electricity from the public grid eases off. That way, the storage packs can provide plenty of power at low cost during the rush hours when thirsty cars show up in droves. Given this backdrop, anyone who uses the Electrify platform should not look under the covers if they want to pretend that they're giving Tesla the cold shoulder.

The setup is similar for other operators including those in Europe. A telling example involved Herbert Diess, the chairman of the Volkswagen Group whose brands run the gamut from Audi and Porsche to Bentley and Lamborghini. The chieftain went on a tour of multiple countries on the Continent during his summer holidays in 2021.

Diess admitted freely on the Twitter platform and elsewhere that the state of the charging stations available to him was deplorable. By contrast, Tesla drivers who go on similar treks in the U.S., Europe or elsewhere thank their lucky stars that they don't have to contend with the slew of hassles served up by apathetic operators.

The sorry state of the stations run by amateurs is the reason that the German government urged Tesla in 2021 to open up its proprietary network in Europe to vehicles made by other vendors. The trendsetter of course agreed to do so. From a larger stance, Tesla is happy to do what it can to get more people to migrate faster to clean cars, regardless of the brands they happen to own or drive.

To sum up, the best bet by far when it comes to charging stations is to go with Tesla. Sometimes, life is simpler than it has any right to be.

Crisis of Carmakers

For the sake of diversification, a guarded player might think it wise to invest in one or more carmakers in addition to Tesla. At this stage, however, the Volkswagen Group is the only old-timer in the auto industry that nurses a decent chance of survival. As the second-biggest carmaker in the world, the German firm trails slightly behind Toyota of Japan. On the downside, though, both of the mammoths today will turn into midgets by the end of the 2020s.

Back in the autumn of 2021, Herbert Diess rounded up his top 200 executives at the Volkswagen Group and held a workshop lasting three days. To spice up the confab, the magnate invited a friendly colleague – namely, Elon Musk – as a guest speaker via a video link (Burger, 2021). Musk joined in as part of his occasional efforts to help the groping firm from going bankrupt.

After all, Tesla's mission is to quicken the transition to green energy rather than slay the dinos of the auto industry. Despite Musk's willingness to help out, though, the dodos will die off en masse anyway thanks to their own vices including greed and sloth. A prime example involves the refusal to sacrifice a hunky slice of current profits in order to effect the sweeping changes needed to escape the extinction event now underway.

On an upbeat note, Diess seems to be the only honcho among the brood of relic carmakers who can see the light for real rather than merely pay lip service to going electric. The chieftain has been pushing hard in recent years to get Volkswagen to reform, but on several occasions he almost got fired for his efforts.

In a German company, a committee known as the *supervisory board* appoints the members of the management board and gets to approve major business plans. If the firm has more than 2,000 employees, the workers elect half the members of the supervisory board. The ensuing obsession with job security accounts for the debility of many a German firm.

Diess has been trying to cut costs in order to help pay for a massive overhaul of the Volkswagen Group: an investment of €34 billion ($38 billion) in electric cars and self-driving software, plus €50 billion to secure adequate supplies of car batteries. Unfortunately for the company, the representatives of labor unions comprise 9 of the 19 members on the supervisory board. Not surprisingly, this faction tries continually to expel Diess from the company.

The clique has partly fulfilled its goals in recent years. For instance, Diess was ousted from his role as the head of the Volkswagen division that lies at the heart of the sprawling enterprise (Automotive, 2021). On the upside, though, the bigwig managed to retain his other position as the head of the entire Group where he is now one step removed from the direct control of operations on a workaday basis.

Sadly, the unions are oblivious to the accelerating changes in the world at large. The upheavals run the gamut from technical progress and consumer demand to government

policy and foreign competition. The upthrows at work have been crunching the revenues at Volkswagen as well as other fossil carmakers round the world since the late 2010s.

To the extent that Diess can prevail in revamping Volkswagen, he will save a fraction of the jobs that the unions so fiercely want to preserve. If instead he fails thanks to the machinations of the mossbacks, then the entire Group will go bust and thus wipe out every single job at the company.

On a positive note, Diess has thus far survived the attempts to oust him. Even so, the poor fellow cannot by himself prevail against the legions of yokels that block his efforts at every turn, be they self-absorbed workers or dim-witted managers.

Future Winners

By the 2030s, the only titans in the auto industry in general – let alone electric cars in particular – will be Tesla along with a couple of rising stars based in China. In the latter realm, the leading light at this stage lies in the BYD Company. The firm's stock trades in the U.S. under the ticker symbol of *BYDDY*. (An alternative widget for the same purpose is *BYDDF*, but the latter has less liquidity.)

At this stage, BYD sells cars mostly in China. But it has in recent years made a concerted effort to push further into remote markets such as Australia and Europe. In the years to come, BYD will likely become the second-largest carmaker in the world, surpassed only by Tesla.

Incidentally, the biggest investors in BYD to date include a couple of heavyweights based in the U.S. Among them is the illustrious investor Warren Buffett acting through his holding company, Berkshire Hathaway (Flannery, 2021).

If I were to diversify into a carmaker beyond Tesla, BYD is the only firm to consider at this stage. But such a move would occur purely for the sake of diversification since I expect TSLA to outshine BYDDY by a husky margin – except perhaps on a transient basis such as an unusual jump in profits from one quarter to the next.

The vendors of electric cars in China receive hefty subsidies from the national government. In addition, municipal agencies often compete with each other to shower newborn ventures with huge tracts of land as well other enticements in the hope of spawning high-paying jobs by the thousands. Despite the abundance of handouts,

though, BYD along with its peers have a tough time making money on their electric models.

To recap, Tesla is the only company in the world that earns pots of profits by building green cars. Moreover, the prospects for zingy growth by the firebrand over the long range are even brighter in latent markets such as power grids, robotic taxis, and humanoid robots.

Given this roadmap, the best strategy for diversification is to venture beyond Tesla's compass in the present as well as the future. To this end, examples of safe harbors lie in retailing or clothing, gaming or filmmaking, farming or realty.

Actually, the foregoing list covers a couple of niches that Tesla will enter and liven in the years to come. In fact, it's hard to espy any market that lies beyond the fireball's purview sooner or later. Even so, many of the narrow fields will remain mere footnotes rather than major rubrics in Tesla's docket for the foreseeable future.

Wholesome Path through a Mucky World

Tesla is in effect a diversified growth fund all by itself. To be sure, a conglomerate of any kind is still a single company in a formal sense and thus subject to firm-specific threats of all kinds. Examples of this stripe span the spectrum from scientific breakouts and consumer tastes to government regulations and class-action lawsuits.

For a concrete sample, we turn to the political theater. A showcase involved the White House under the Biden administration in its attempts to prop up a trio of washed-up carmakers while placing other vendors, including Tesla, at a clear disadvantage (Freking, 2021).

If we look at the big picture, though, the beatnik firm has long battled and triumphed over greater villains than grubby pols who sell out the economy and society at large by pandering to one lobby group after another. A good case of a worse scourge lies in the cabal of mass media and their sponsors in a decades-long campaign to malign and cripple the pioneering firm. Many a dinosaur immersed in dirty fuels – such as a gassy carmaker or an oil producer – funnels billions of dollars every year into advertising in particular and propaganda in general (Kim, 2021). Even so, Tesla has survived the harangues to date and is now strong enough to withstand the attacks as mere barbs rather than dire blows.

To be sure, a cautious player would not want to put all their eggs in a single basket – even if that basket happens to be a polymath named Tesla. In that case, the best approach to diversification is to expand into remote fields that lie far beyond Tesla's orbit for the foreseeable future.

Conclusion

The goal of asset diversification lies in reduced risk for equal gain. This prescript is revered in financial circles as a rare – and to some gurus, the only – form of free lunch on Wall Street.

Unfortunately, the gospel of diversity shrugs off a slew of grave dangers in the real and financial markets. The roots of the problem lie in a couple of sweeping assumptions behind the doctrine. One hang-up lurks in the premise of independent movements in price among the assets: a rampant myth among practitioners as well as researchers.

The second snag skulks in the dogma of perfect rationality: the hoodoo whereby investors in the aggregate conduct sober and balanced assays of the marketplace in every way at all times. The bunkum of boundless wisdom applies, for instance, to the global outlook for the real economy or the precise valuation of every asset in the financial forum. Unfortunately, all these clichés happen to be false.

The botch-up of asset diversification besets all manner of actors ranging from part-time tyros to full-time pros. An example involves a lonesome investor who allots a uniform slug of capital to the fledgling firms in a brand-new industry in the hope of reaping a windfall while curbing the risk of volatility.

On the glum side, though, the vast majority of striplings are fated to thrash around and die out within a few years if not months. For this reason, the grievous threat of a total flop far outweighs the minor nuisance of some turbulence in asset prices.

Another sample of flawed diversity concerns an index fund meant to serve as a one-stop shop for investing in a budding market. A case in point is a multihued fund focused on clean energy. The communal pool may cover a host of companies – ranging from electric carmakers to mining firms – while weighting the stocks based mostly or wholly on their latest valuations on the bourse. On the dour side, though, the simplistic approach to risk management denies the fact that the bulk of the firms will go bust in short order.

The rubout of hatchlings in droves is par for the course in a sprouting industry. Moreover, the few entrants that do survive will be hard-pressed to chalk up the juicy returns needed to justify the hulky risks borne by the investors from the outset. In this somber setting, a blind devotion to the hymn of asset diversification is a faithful way to earn woeful returns.

From a different slant, the plethora of washouts in the portfolio will likely ensure that the investor ends up trailing behind the benchmarks of the stock market. For a variety of reasons, then, a gung-ho approach to diversity is a fool’s ploy rather than sound play for decent gains, much less a sure path to plump profits.

These and allied bugbears run riot in the raucous field of green energy at the dawn of the millennium. A showcase involves a maverick named Tesla in its mission to quicken the transition to a sustainable economy in the world at large. The case study highlights a heap of myths and mistakes in asset diversification. Another spotlight features a stack of dangers and safeguards to keep in mind while growing a lively portfolio.

To wrap up, the foul-up of asset diversification is a prime reason for the chronic failure of investors and pundits alike to keep up with the benchmarks of the stock market. As a recourse, a solid grasp of the myths and muffs behind diversity is a basic step toward forging a sound program of investment.

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Full Disclosure. I own some shares of Tesla. The holdings began with a small stake in January 2020 but are now less small than they used to be. In the absence of a bombshell in the marketplace, I plan to buy more shares for years to come by allotting a portion of the profits from other stocks along the way.

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